B.E. (Civil Engineering) Seventh Semester (C.B.S.)

Estimating and Costing

P. Pages : 4 **NIR/KW/18/3517**

Time : Four Hours * 1 8 8 4 * Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.
11. Use of non programmable calculator is permitted.

1. a) Explain with suitable examples. The various methods of calculating Approximate Estimates. **6**

b) The following table is an extract from the longitudinal section of a road earthwork survey. Calculate the quantity of earthwork from the following data. **7**

i) Formation with : 12m

ii) Side slopes:
   a) Banking – 2: 1
   b) Cutting – 1.5: 1

Chainage	0	30	60	90	120	150	180
RL of Ground	99.70	99.80	100.30	100.50	100.80	100.90	100.60
RL of formation	100.50	←lin 300(+)→			←lin 150(–)→		

OR

2. a) Prepare a preliminary estimate of a double storeyed building having carpet area of 1800 m^2. It may be assumed that 30% of the built up area will be considered for corridors & verandahs & 10% of the area to be occupied by walls. **6**

Given:

i) Plinth Area Rate : Rs. 1500 per m^2

ii) Water supply & : 5% of building cost sanitary works.

iii) Electrical Installation : 12.5% of building cost

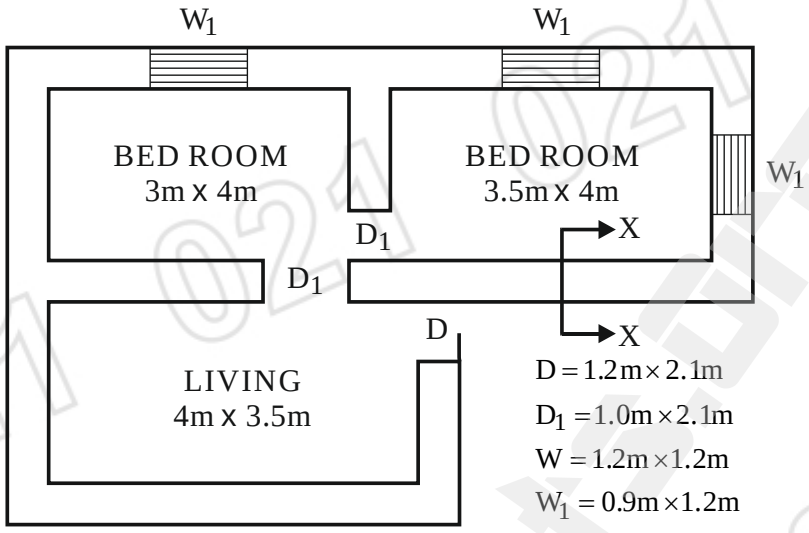
iv) Contingencies : 10%

b) What are various methods of calculating Detailed Estimate? Explain centre line method compared to other methods. **7**

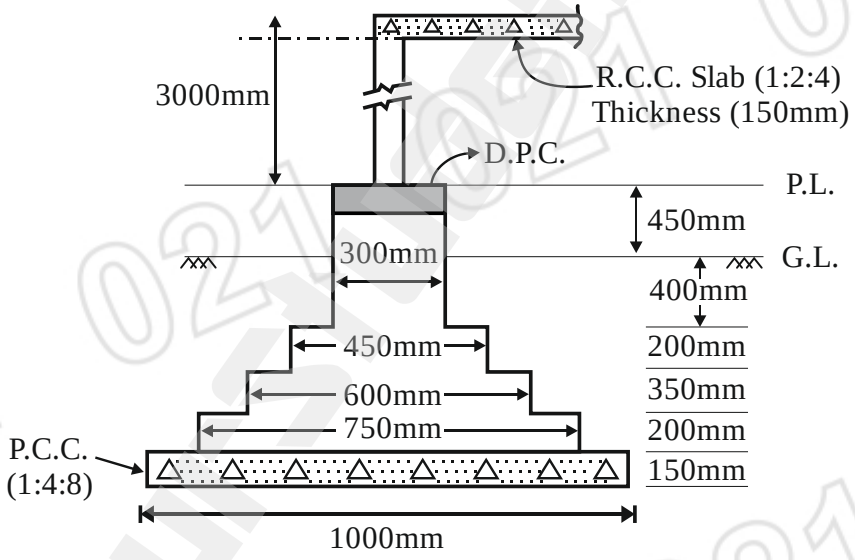
3. a) Estimate the quantities for the following items of work for the given building plan & typical wall section in figure (I) **8**

i) Earthwork in excavation in foundation trenches.

ii) II[nd] class brick masonry in cm 1:6 in foundation & plinth



PLAN



Section At X-X

Figure (I)

b) A RCC S. S. slab of clear size 3.1m × 6.3m is Reinforced with 10mm ϕ @ 120mm c/c alternately bent up. Distribution bars are 6mm ϕ @130mm c/c. Thickness of slab is 130mm. Calculate total quantity of reinforcement. Also prepare schedule of bar. **6**

OR

4. a) As per figure (I) showing plan & section calculate **8**

i) II[nd] class brick masonry in CM 1:5 in super structure.

ii) 12mm thick internal cement plaster in CM 1:4 for ceiling & walls.

b) A R.C.C. S. S. beam of size 300×650 is reinforced with 4 Nos. of 20mmϕ. Main bars are placed in one row & two bent up. Two achor bars of 12mmϕ are provided at top 8mmϕ stirrups are provided @ $140\,mm\,c/c$. The overall beam length is 6m. Calculate the total quantity of steel required show bar bending schedule. **6**

5. a) Define the term "contract". What are the various types of contracts? Explain advantages and disadvantages of any one. **6**

b) Explain the terms "Administrative Approval" and technical sanction. **7**

OR

6. a) i) Explain types of Tender. **6**
ii) Enlist an information to be included in tender notice.

b) i) Explain the contract documents. **7**
ii) Explain the reasons for rejection of the lowest tender.

7. a) Define specification. Describe in brief the objects & types of specification. **6**

b) Write a detailed specification of the following items. **7**
i) IInd class bricks masonry in CM 1:6 in super structure.
ii) Laying P.C.C. 1:4:8 mix in foundation.

OR

8. a) Explain the points to be kept in mind while drafting specification. **7**

b) Explain 'Direct & Indirect charges'. **6**

9. a) Define Rate Analysis. Explain factor affecting it. **6**

b) Work out rate analysis for the following items **8**
i) Brick masonry in CM 1:6 in superstructure with brick size $23cm \times 11cm \times 7cm$.
ii) Plain cement concrete 1:4:8 mix.

OR

10. a) Explain in detail the task work of labourer and the factor affecting it. **6**

b) Calculate the rate per unit item of the following. **8**
i) RCC work (1:2:4) in slab (Assume 1% steel reinforcement)
ii) 10cm thick cement concrete flooring (1:3:6)

11. a) What is valuation? Explain in brief the various purposes of valuation. **7**

b) A person has purchased an old building at the cost of Rs.90 lakhs. on the basis that the cost of land is Rs.50 lakhs and the cost of building structure is Rs.40 lakhs. Considering the future life of a building as 20 years. Calculate the amount of sinking fund at 4% interest, when scrap value is 10% of the building structure. **6**

OR

12. a) Enlist the various types of value. Explain any two. **7**

b) A leasehold property is to produce a net annual income of Rs.12,000 for the next 20 years. The owner expects a return of 8% on his capital and also sets apart a sinking fund to accumulate at 6% annually to replace the capital. Determine the capitalized value of the property. **6**

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